C2

1. (Three times amended) A 2000 series aluminum alloy consisting essentially of in weight percent about 3.60 to 4.25 copper, about 1.00 to 1.60 magnesium, about 0.30 to 0.80 manganese, no greater than about 0.05 silicon, no greater than about 0.07 iron, no greater than about 0.06 titanium, no greater than about 0.002 beryllium, the remainder aluminum and incidental elements and impurities, wherein a T_{max} heat treatment is below the lowest incipient melting temperature for a given 2000 series alloy composition and the Cu_{target} is determined by the expression:

$$Cu_{target}=Cu_{eff} + 0.74(Mn - 0.2) + 2.28(Fe - 0.005)$$

wherein said alloy improves by a minimum of 5% compared to the average values of standard 2324-T39 alloy shown in Fig. 1 for the same properties selected from the group consisting of the plane strain fracture toughness, K_{Ic}, the plane stress fracture toughness, K_{app}, the stress intensity factor range, ΔK, at a fatigue crack growth rate of 10 µ-inch/cycle wherein R = 0.1 and RH is greater than 90%, and combinations thereof.

C3

2 ~~3~~. (Amended) The 2000 series aluminum alloy of claim 1 wherein the Cu_{target} composition is about 3.85 to about 4.05 weight percent and the Mg_{target} is about 1.25 to about 1.45 weight percent.

C4

32 ~~4~~. (Twice amended) The 2000 series aluminum alloy of claim 31 ~~3~~ wherein said alloy improves by a minimum of 5% compared to the average values of standard 2324-T39 alloy shown in Fig. 1 for the same properties selected from the group consisting of the plane strain fracture toughness, K_{Ic}, the plane stress fracture toughness, K_{app}, the stress intensity factor range, ΔK, at a fatigue crack growth rate of 10 µ-inch/cycle wherein R = 0.1 and RH is greater than 90%, and combinations thereof.

31

C

33 ~~12~~. (Twice amended) The 2000 series aluminum alloy of claim 31 ~~2~~ wherein said alloy improves by a minimum of 5.5% compared to the average values of standard 2324-T39 alloy shown in Fig. 1 for the same properties selected from the group consisting of the plane strain fracture toughness, K_{Ic}, the plane stress fracture toughness, K_{app}, the stress intensity factor range, ΔK, at a fatigue crack growth rate of 10 μ-inch/cycle wherein R = 0.1 and RH is greater than 90%, and combinations thereof.

34 ~~13~~. (Twice amended) The 2000 series aluminum alloy of claim 31 ~~2~~ wherein said alloy improves by a minimum of 6% compared to the average values of standard 2324-T39 alloy shown in Fig. 1 for the same properties selected from the group consisting of the plane strain fracture toughness, K_{Ic}, the plane stress fracture toughness, K_{app}, the stress intensity factor range, ΔK, at a fatigue crack growth rate of 10 μ-inch/cycle wherein R = 0.1 and RH is greater than 90%, and combinations thereof.

35 ~~14~~. (Twice amended) The 2000 series aluminum alloy of claim 31 ~~2~~ wherein said alloy improves by a minimum of 6.5% compared to the average values of standard 2324-T39 alloy shown in Fig. 1 for the same properties selected from the group consisting of the plane strain fracture toughness, K_{Ic}, the plane stress fracture toughness, K_{app}, the stress intensity factor range, ΔK, at a fatigue crack growth rate of 10 μ-inch/cycle wherein R = 0.1 and RH is greater than 90%, and combinations thereof.

36 ~~15~~. The 2000 series aluminum alloy of claim 31 ~~2~~ wherein said alloy improves by a minimum of 7% compared to the average values of standard 2324-T39 alloy shown in Fig. 1 for the same properties selected from the group consisting of the plane strain fracture toughness, K_{Ic}, the plane stress fracture toughness, K_{app}, the stress intensity factor range, ΔK, at a fatigue crack growth rate of 10 μ-inch/cycle wherein R = 0.1 and RH is greater than 90%, and combinations thereof.

C4

32

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